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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,301	07/01/2004	Min-Lung Huang	11574-US-PA	4300
31561	7590	12/14/2004	EXAMINER	
JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE 7 FLOOR-1, NO. 100 ROOSEVELT ROAD, SECTION 2 TAIPEI, 100 TAIWAN			WARREN, MATTHEW E	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/710,301

Applicant(s)

HUANG, MIN-LUNG

Examiner

Matthew E Warren

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

Claim 5 is objected to because of the following informalities: in line 2, the phrase “the dielectric layer” lacks antecedent basis. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-3, 5, and 6 are rejected under 35 U.S.C. 102(a) as being anticipated by Nagano et al. (US 6,441,120).

In re claim 1, Nagano et al. shows (fig. 1) a wafer level passive component, suitable for a chip (100), the chip at least having an active surface, a first contact pad (105 not labeled), a second contact pad (105) and a passivation layer (106), the first contact pad and the second contact pad disposed on the active surface, the passivation layer disposed on the active surface and exposing the first contact pad and the second contact pad, the wafer level passive component at least comprising; a first conductive pattern (bottom electrode 109 not labeled), lying over the active surface and having a first connecting area and a first overlapping area, wherein the first connecting area connects to the first contact pad and the first overlapping area (portions of 109 not

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connecting to the plug 107) lies on the passivation layer; a dielectric pattern (110A), lying on the first overlapping area; and a second conductive pattern (111), lying over the active surface and having a second connecting area and a second overlapping area (area over lower electrode 109), wherein the second connecting area connects to the second contact pad (105), the second overlapping area lies on the dielectric pattern, and at least a portion of the dielectric pattern is interposed between the first overlapping area and the second overlapping area.

In re claims 2 and 3, Nagano discloses (col. 7, lines 41-56) that the first and second conductive patterns include a metal.

In re claims 5 and 6, Nagano discloses (col. 7, lines 41-48) that the capacitor dielectric is made of strontium bismuth oxide which is a known high dielectric constant material. A dielectric layer (110A) covers a portion of the first conductive film.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano et al. (US 6,441,120) as applied to claim 1 above, and further in view of Heida et al. (US 6,777,776 B2).

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In re claim 4, Nagano shows all of the elements of the claims except the dielectric pattern of aluminum oxide which Heida discloses (col. 11, lines 55-60) to form reduced pinhole formation and ultimately improved the device yield. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the capacitor dielectric of Nagano by using an aluminum oxide layer as taught by Heida to ultimately increase the device yield.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano et al. (US 6,441,120) as applied to claim 1 above, and further in view of Rinne et al. (US Pub. 2002/0020551 A1).

In re claim 7, Nagano shows all of the elements of the claims except the under bump metallurgy layer disposed between the conductive pattern and the first contact pad which Rinne et al. discloses [0044] to provide a plating electrode. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the connection of Nagano by using a under bump metallurgy instead of conductive plugs as taught by Rinne to provide a plating electrode for wafer level component such as a capacitor.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ahn et al. (US Pub. 2004/0075131 A1), Tsutsue et al. (US Pub. 2004/0099897 A1), and Furuya et al. (US Pub. 2004/0140527 A1) each show wafer

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level passive components but cannot be applied as prior art because they do not predate the effective filing date of the instant application. Hoshi (US 5,903, 023) also shows a wafer level passive component. Hoshi differs in that the component is formed directly on the substrate and not on a passivation layer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E Warren whose telephone number is (571) 272-1737. The examiner can normally be reached on Mon-Thur and alternating Fri 9:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MEW

*MEW*

December 13, 2004

*Tom Thomas*  
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